

Abstract of the Disclosure

A system for measuring the spatial dimensions of a three-dimensional object
5 employs a lens and at least two detectors. The combination of which defines two or more
object planes. The combination of the lens and the detectors define an optical axis that is
normal to the object planes and passes through a focal point of the lens. At least a first
and a second photodetector are optically aligned with the object through the lens. The
first and second photodetectors or array of detectors are further parallel with the surface
10 but have differing elevations relative to that surface. In addition, the first and second
photodetectors are capable of motion relative to said object. Electrical output from the
first and from the second photodetectors is provided to a processor that determines a
distance of the object from the lens and thereby a height of the object. This system is
particularly suited for measuring the spatial dimensions of solder balls mounted to a
15 surface of a ball grid array (BGA) electronic package.

5SH201!.DOC\14587\2\270182.05